CU-100A
Installation Manual

PLC Coupler

Plug into the future
Powerline Communication by Xeline

Xeline Co., Ltd.

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1. Introduction

Powerline Communication (PLC) technology uses the existing powerline infrastructure to transfer high-speed data, eliminating the need for expensive and complicated cable installation. Because the home or office is already a 'wired network' through powerlines, Xeline's PLC system offers a cost-effective and easy-to-install Internet access solution from any electrical outlet.

Xeline's XPAS-200B PLC Internet Access System supports data rates of up to 24Mbps and is targeted for effective Internet access over powerlines in residential houses or high-rise building configurations.

The CU-100A is the device that couples the output signals of the PLC Master Unit and Repeater Unit to the powerlines. There are two methods to couple the signals: magnetic coupling and capacitive coupling.

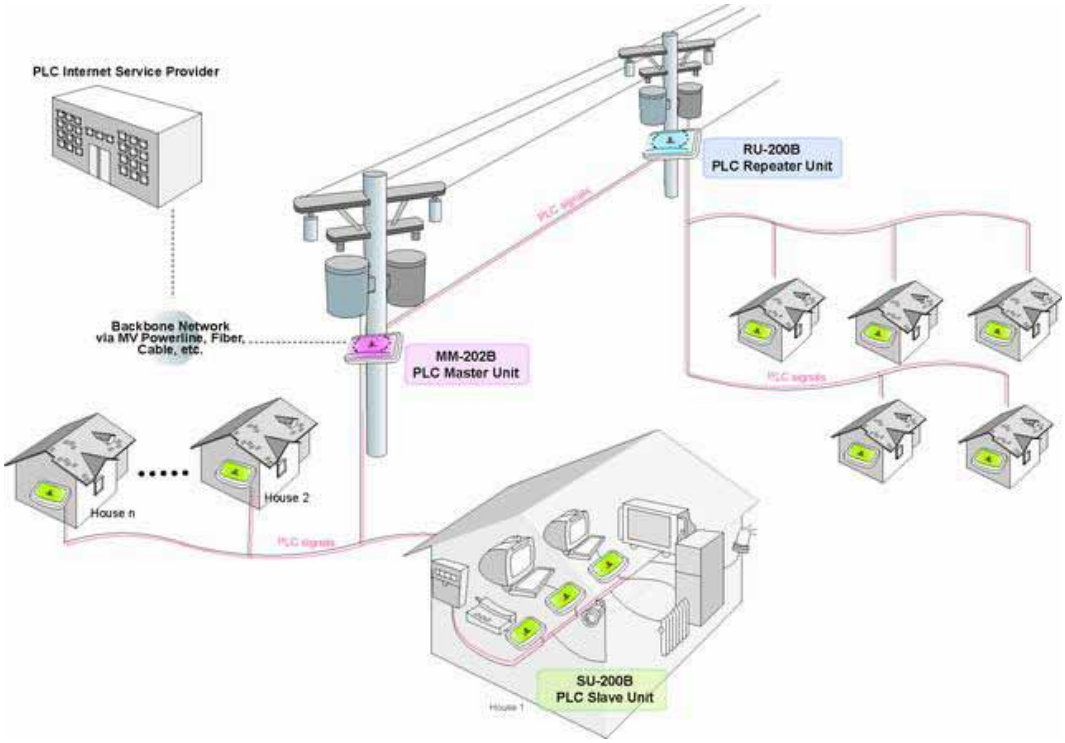
PLC Internet Service Provider
Backbone Network via MV Powerline, Fiber, Cable, etc.
MM-202B PLC Master Unit
RU-200B PLC Repeater Unit
House n
House 2
SU-200B PLC Slave Unit

Figure 1 XPAS-200B PLC Internet Access System Configuration

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2. Before Installing the CU-100A

2.1 Package Contents

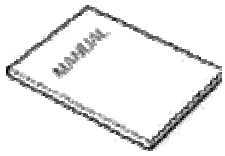
Before installing, first verify that you have all of the following items.

○ CU-100A PLC Coupler

○ Coupling Wires

○ Coupling Devices

○ Coupling Cores



○ Installation Manual

Figure 2 CU-100A and Coupling Accessories

If there is a missing item or any visible damage, notify your service provider or dealer immediately.

2.2 Prerequisites

In order to install the CU-100A, the following conditions must be met:

(1) Sufficient space to install the CU-100A

(2) RJ-11 cable

Note: The RJ-11 cable is not included with the product because the distance to each subscriber's house varies widely according to the configurations. The RJ-11 cable should be a straight cable with wires in the same sequence on both ends.

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2.3 Guidelines for Installation

Please make sure to read the following guidelines before installation.

(1) In apartment/building configurations, the CU-100A should be installed to the secondary side of the circuit breaker (on the subscriber side).
(2) One CU-100A can support up to 4 subscriber homes in residential building configurations.
(3) When using the magnetic coupling method, wrapping the wires in the wrong direction causes communication failure. Make sure to follow the manual carefully.
(4) When the circuit breakers are sparsely located or when connecting more than 4 houses, it is recommended to extend the CU-100As.

2.4 Safety Precautions

Please make sure to read the following instructions before handling the equipment.

(1) Read all instructions before installing the equipment. Be sure to keep this manual for further reference.
(2) Please follow all the safety precautions and other installation procedures.
(3) Avoid the following environments:
  - Areas with extremely high or low temperatures
  - Areas with high humidity or high risk of flooding
  - Areas where sudden changes in temperature occur
(4) In outdoor configurations, install the CU-100A at least 1m from the ground to avoid contact with children or small animals.

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3. Getting to Know the CU-100A

3.1 Top View

Figure 3 CU-100A Top View

RJ-11 (left) Input port
(right) Extension port

3.2 Bottom View

Figure 4 CU-100A Bottom View

Terminal For connection to the coupling wires (PLC signal coupling)

3.4 Product Specifications

	Specifications	Remarks
Interface	RJ-11 2 port	For connection to the MM-202B
	Coupling terminal 8 port	For connection to coupling wires
Dimensions	97mm × 50mm × 34mm	(W x D x H)

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4. Installing the CU-100A

4.1 Connecting the CU-100A to the MM-202B

The CU-100A is usually installed near the circuit breaker of each subscriber's house. Use a straight RJ-11 cable to connect the MM-202B and CU-100A. The RJ-11 cable is not included with the MM-202B.

① Insert one end of the RJ-11 cable in the **SIG2** port of the MM-202B.

② Insert the other end of the cable in the **INPUT** port of the CU-100A.

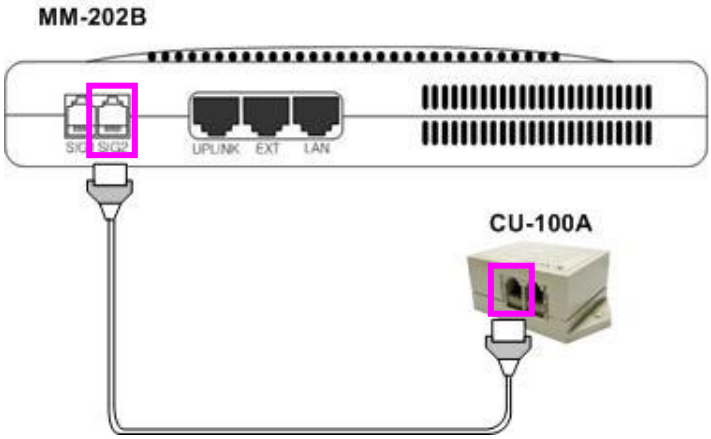

Figure 5 Connecting the MM-202B to the CU-100A

4.2 Extending the CU-100A

When installing more than 4 houses or when subscribers are located in different floors or the circuit breakers are far apart, extend the CU-100As.

It is recommended that the distance between the MM-202B and CU-100A does not exceed 100m at the maximum. Needless to say, signal loss will be greater if the distance between the MM-202B and CU-100A is far.

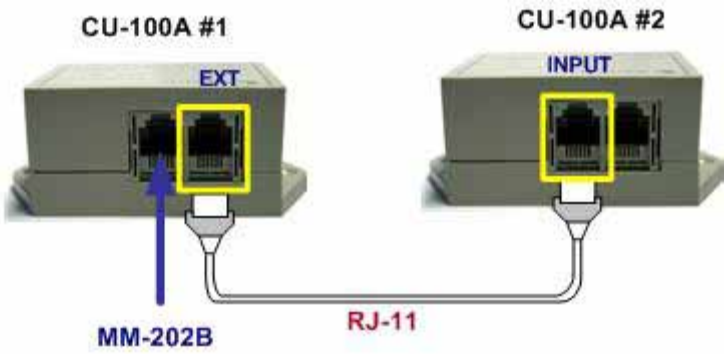

Figure 6 CU-100A Extension

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4.3 Coupling the CU-100A

There are two methods to couple the PLC communication signals to the powerlines:

(1) Magnetic Coupling

(2) Capacitive Coupling

4.3.1 Magnetic Coupling

Magnetic coupling is the suitable method for apartment/building configurations. Xeline's patented magnetic coupling method makes it possible to work on live wires. 1 CU-100A can support up to 4 houses as shown below:

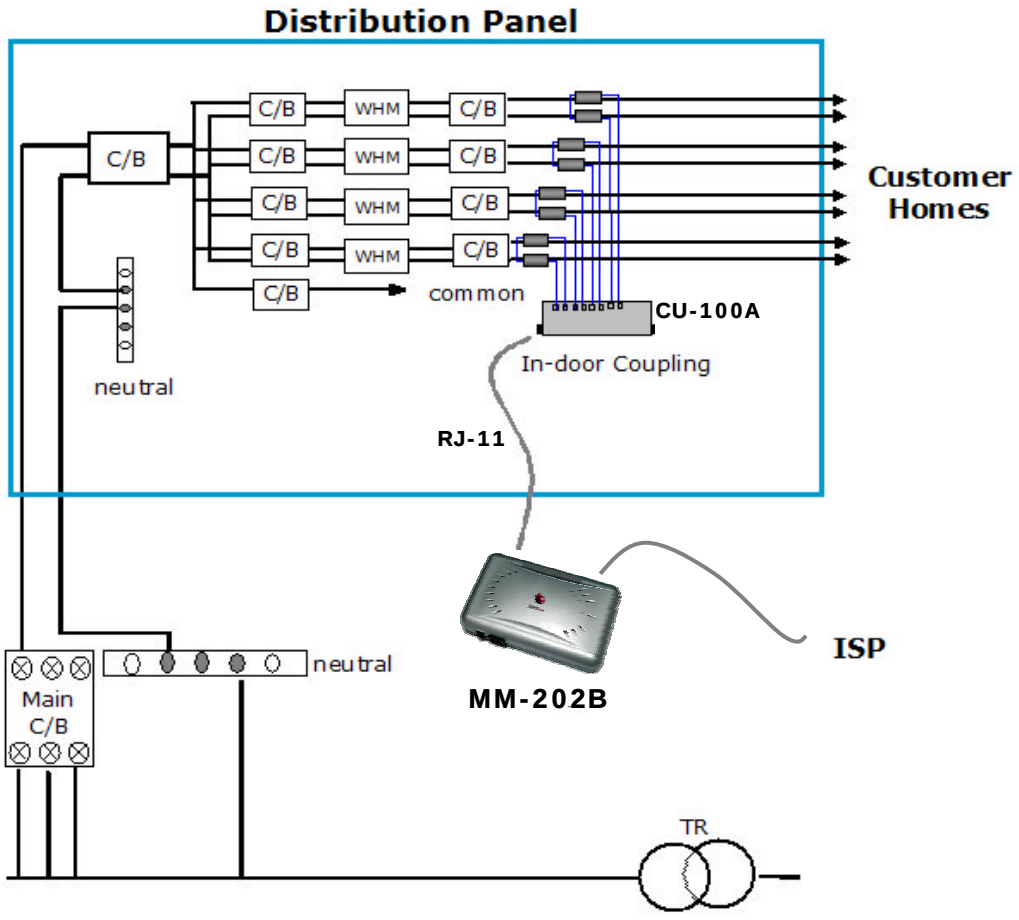

Figure 7 CU-100A Installation Configuration

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① Connect the coupling wires to CU-100A as follows:

A. Unscrew the screws of the coupling terminal.

B. Insert both ends of wire to each slot (each subscriber uses 2 slots)

C. Secure the coupling wires tightening the screws.

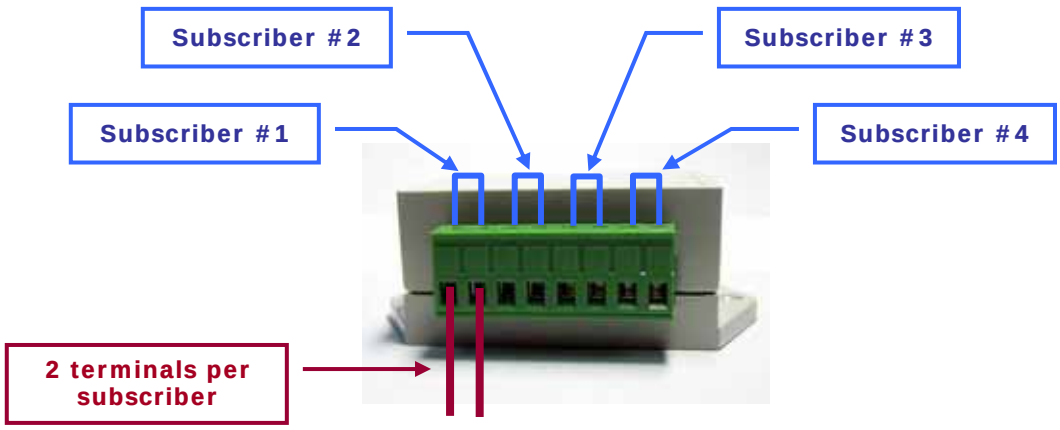

Figure 8 Indoor Coupling Configuration

② The coupling wires are then wrapped around the powerlines leading from the secondary circuit breaker as shown below:

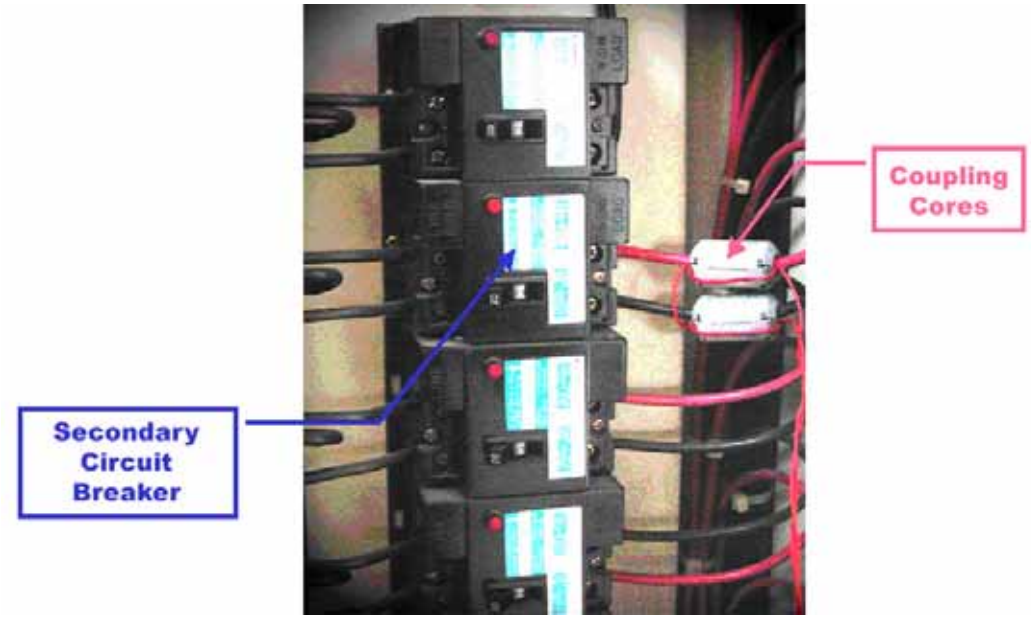

Figure 9 Coupling Core Location

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A. Wind the coupling wire around the ferrite core in the order as shown below.

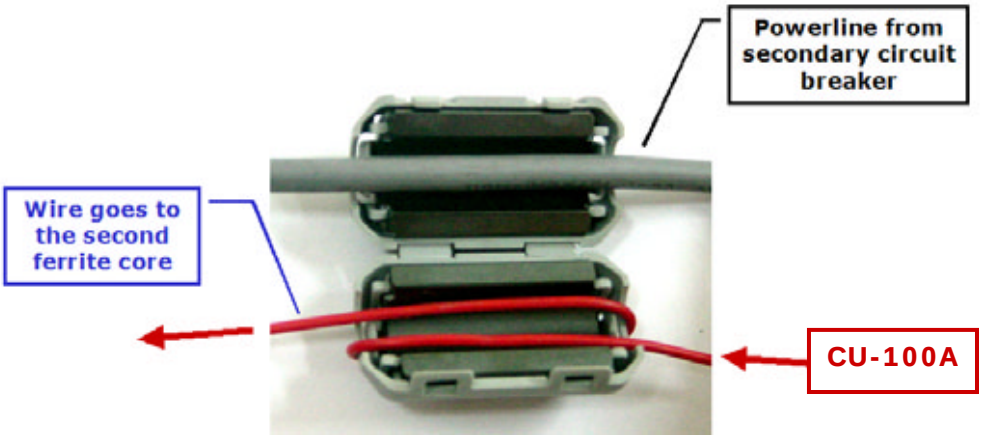

Figure 10 Coupling Wire and Core Installation

B. Close the ferrite core after winding the wire around one side of the core.

C. Wrap the coupling wires around the second core in the same fasion. and putting power cable on the other side.

D. Close the ferrite core after winding the wire in the same fashion for the other power cable.

E. The overview of winding procedure is as shown below:

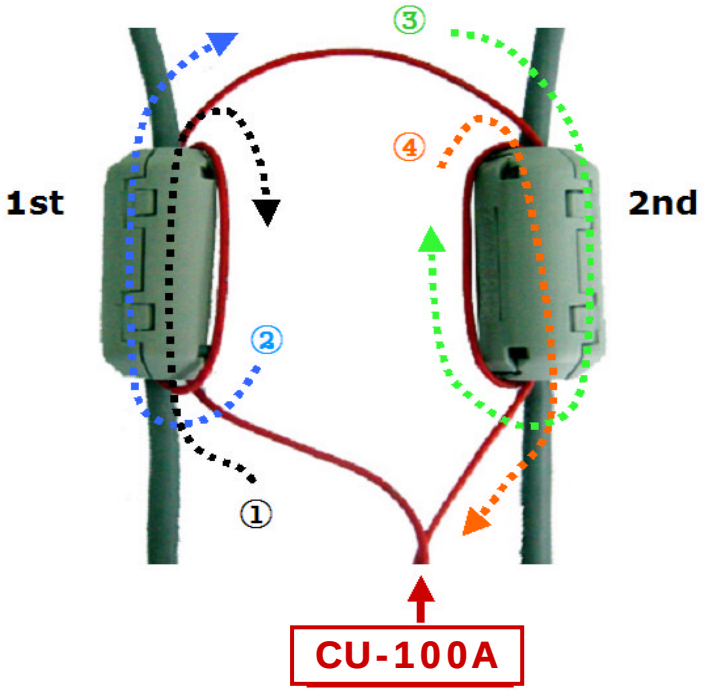

Figure 11 Coupling Wire and Core Installation Method

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③ Attach the shunt device to the screw part of the circuit breaker as shown in the following figure.

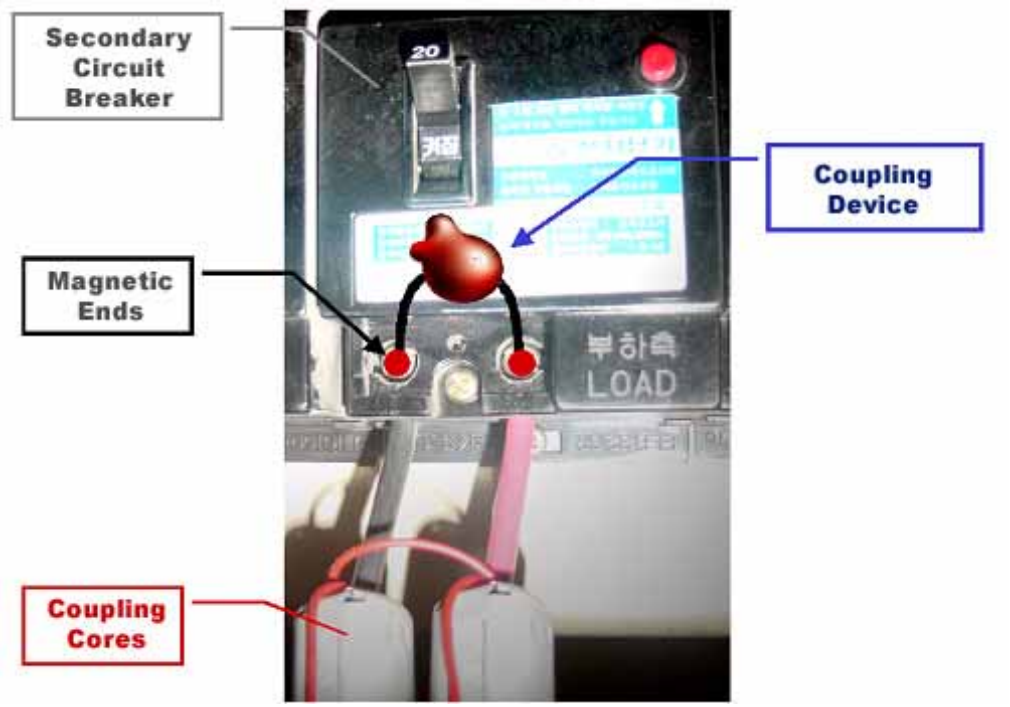

Figure 12 Coupling Device Installation

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4.3.2 Capacitive Coupling

Capacitive coupling is suitable for general residential house configurations when the MM-202B is installed on the transformer pole. Coupling wires, coupling cores and magnetic coupling devices are not needed.

Note: Extreme caution should be taken to avoid electric shock accidents when working with live powerlines!

① Connect the power cable to the circuit breaker.

② After stripping off both ends of the power cable using a stripper, insert them in the HOT line and Neutral line terminals as shown below:

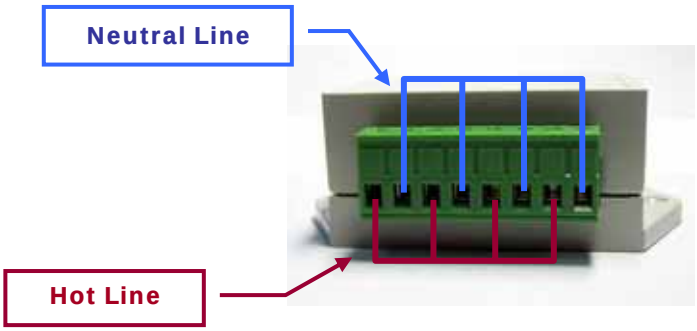

Figure 13 Capacitive Coupling 1

③ Secure the power cables by tightening the screws.

④ When there is only one coupling location, place the two lines far apart as in the figure below:

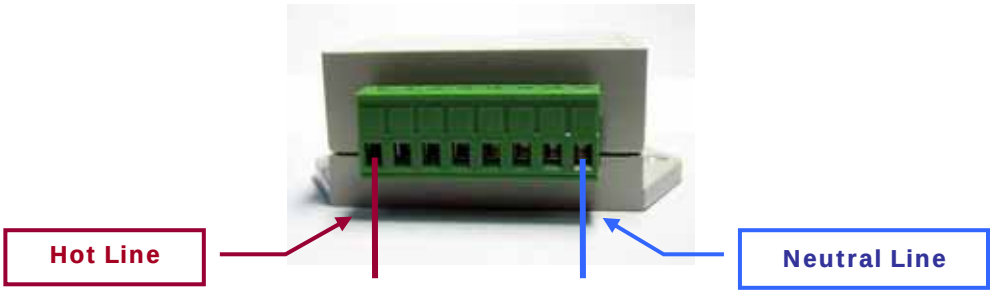

Figure 14 Capacitive Coupling 2

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5. Appendix

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